

# Shaun Chen

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## EDUCATION

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### University of California, Santa Barbara

*Bachelor of Science in Electrical Engineering*

*Master of Science in Electrical and Computer Engineering, Concentration: Signal Processing*

Santa Barbara, CA

*Expected June 2022*

*Expected June 2023*

- College of Engineering Honors Program, 3.61/4.0 GPA
- Studied abroad in Taipei, Taiwan during Spring 2021 Semester (National Taiwan University)
- Current Regent of UCSB Theta Tau Professional Engineering Fraternity

## PROJECT EXPERIENCE

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### Live-Feed Arthroscopic Surgery Visual Assistance Tool

Sep. 2021 - Present

*Team Lead of Senior Electrical Engineering Capstone Project with Arthrex*

- Design live-feed computer vision software in Python and MATLAB to aid surgeons with obstruction awareness in an arthroscopic view
- Implement a surgical tool position-tracking algorithm using the de Bruijn sequence
- Organize and present weekly updates with team members to mentors and employees

### Content-Aware Image Fixing Tool

Oct. 2021 – Dec. 2021

*Digital Image Processing Class Project in MATLAB: [https://github.com/shaunchenucsb/Content\\_Aware\\_Image\\_Fixing\\_Tool](https://github.com/shaunchenucsb/Content_Aware_Image_Fixing_Tool)*

- Implemented computational photography methods including image resizing, content-aware hole-filling, and seam-carving
- Utilized the PatchMatch algorithm to optimize program runtimes by using random search and nearest neighbor correspondences

### Car Detection System

July 2021 - Sep. 2021

*Personal QOL Improvement Project in Python: [https://github.com/shaunchenucsb/StreetParkingDetection\\_YOLO](https://github.com/shaunchenucsb/StreetParkingDetection_YOLO)*

- Detects street parking availability using OpenCV and YOLOv3 real-time object detection algorithm
- Integrated Telegram API for sending mobile notifications

### Machine Learning Analytical Website

Sep. 2020 - Dec. 2020

*Machine Learning Class Project in Python: [https://github.com/shaunchenucsb/ML\\_Analytical\\_Website](https://github.com/shaunchenucsb/ML_Analytical_Website)*

- Predicted top NBA players based on n-categories of their stats using various classification, regression, and outlier ML models from the Scikit Learn module
- Built a Web API using the Django REST framework to input datasets and display resulting 3D plot diagrams

## RESEARCH

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### National Taiwan University, Graduate Institute of Photonics & Optoelectronics

Feb. 2021 – June 2021

*Device Fabrication Process Assistant*

*Taipei, Taiwan*

- Fabricated perovskite solar cells built on an inverted pyramid array structure via the Sandwich Evaporation Technique alongside post-doctorate mentor
- Handled expensive machinery such as the thermal evaporator, PECVD, and photolithography aligner
- Observed its properties and improved the overall efficiency from the lab's 14.1% to 18.1%

## SKILLS

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Relevant Coursework: Computer Vision, Machine Learning, Image Processing, Digital Signal Processing

Technical: 2+ years of experience in MATLAB, Python, Git, Autodesk Fusion 360, and Solidworks

0+ years of experience in C++, JavaScript, CSS, and HTML

Languages: English (Native), Mandarin (Fluent)

## ACTIVITIES & AWARDS

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Lockheed Martin Scholarship

Jan. 2021

Duttenhaver Award

Dec. 2020